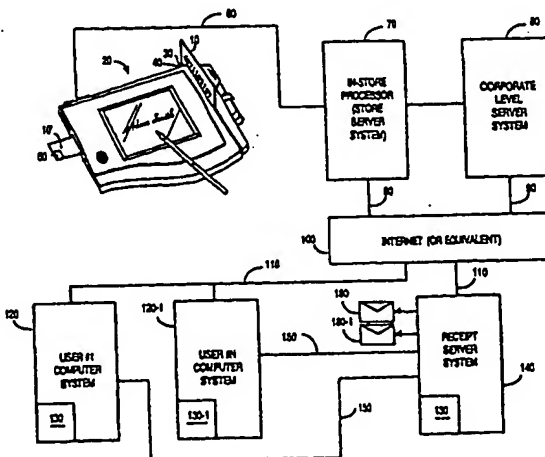




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT) -

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<p>(21) International Application Number: PCT/US98/22539</p> <p>(22) International Filing Date: 23 October 1998 (23.10.98)</p> <p>(30) Priority Data: 08/957,757 24 October 1997 (24.10.97) US</p> <p>(71) Applicant: PENWARE, INC. [US/US]; 500 Oakmead Parkway, Sunnyvale, CA 94086-4056 (US).</p> <p>(72) Inventors: VALLIANI, Aziz; 1111 Tewa Court, Fremont, CA 94539 (US). RAFII, Abbas; 15446 Wistaria Court, Los Altos, CA 94024 (US).</p> <p>(74) Agents: HERBERT, Thomas, O. et al.; Flehr, Hohbach, Test, Albritton & Herbert LLP, Suite 3400, 4 Embarcadero Center, San Francisco, CA 94111-4187 (US).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasia patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	

(54) Title: METHOD AND SYSTEM FOR AUTOMATED ELECTRONIC RECEIPT OF TRANSACTIONS



(57) Abstract

A card holder's credit card (10) (or the like) is programmed to store the holder's electronic e-mail address (30) and preferably encryption key (30), in addition to normal credit-card account data. During or after the time of a transaction, the e-mail information (30) is read and a processor (70) at the point of transaction transmits preferably encrypted transaction data automatically to the e-mail address for example, via the internet (100). The e-mailed data (30) is thus available to the card holder's computer system (120) and/or a receipt server system (140). The data, which may be retrieved using push-pull internet technology, may be incorporated into an accounting program (130). Such program (130) can automatically provide the card holder with an up-to-date record of credit card transactions, with requiring the card holder to manually enter transaction data or to archive paper receipts documenting the transaction.

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METHOD AND SYSTEM FOR AUTOMATED ELECTRONIC RECEIPT OF
TRANSACTIONS

5

RELATIONSHIP TO PREVIOUSLY FILED APPLICATION

This is a continuation-in-part application of applicants' co-pending U.S. patent application serial no. 08/853,955
10 filed May 9, 1997 entitled MODULAR SIGNATURE AND DATA-CAPTURE SYSTEM AND POINT OF TRANSACTION PAYMENT AND REWARD SYSTEM, and assigned to the assignee herein. Corresponding to said application is pending PCT application US98/09448, having an international filing
15 date of May 8, 1998.

FIELD OF THE INVENTION

This invention relates to devices and systems that electronically process debit and/or credit transactions for
20 users, and more specifically to methods and systems that automatically provide users with an electronic receipt and accounting for such transactions.

BACKGROUND OF THE INVENTION

25 Electronic transactions are commonly practiced by many individuals who incur a debit or credit electronically at a store or other point of transaction, using a credit card or the like. If a purchase or cash advance is made, the account of the user or card holder should be debited,
30 and if a deposit or return is being made, the account should be credited. As used herein, the term "electronic card" or "credit card" shall be understood to include credit cards, debit cards, loyalty cards, and so-called smart cards. Such cards include on-card memory
35 that stores card holder account identification and related data.

The card holder typically hands his or her credit card to a cashier at the point of transaction. The cashier enters the subject transaction (e.g., purchase of ten shirts at \$25.00 each, two ties at \$20.00 each, etc.)

5 into an electronic system. Within a matter of seconds or minutes the transaction is processed and the card holder's credit card account is debited by the amount of the transaction. Or, if a deposit or perhaps merchandise exchange is involved, the account should be credited.

10

When the transaction is complete, the cashier typically hands the card holder a paper receipt from the store itemizing the transaction, as well as a paper receipt documenting the credit card transaction. Not

15 infrequently the card holder may misplace the paper receipts, which can make reconciling the monthly statement from the credit card company difficult.

However, even a diligent card holder who has not misplaced the paper receipts will have to spend time

20 manually confirming the accuracy of the monthly statement. Typically the card holder will manually enter the transaction data into an accounting system, for example, the popular QuickenTM software program marketed by IntuitTM, or the MoneyTM software program marketed by
25 MicrosoftTM. Often the card holder will have several credit cards, which compounds the amount of manual labor to be carried out on a monthly basis, if accurate records are to be maintained, especially for business or tax purposes.

30

Thus, there is a need for a system whereby a card holder's accounting records can automatically be maintained and updated to reflect transactions made with a credit card. Such system should not require the card

35 holder to manually reenter transaction data or even to retain paper receipts that were received at the point of transaction.

The present invention provides such a system and method for automatically providing electronic receipt and transaction accounting.

SUMMARY OF THE PRESENT INVENTION

5 According to the present invention, the credit card, debit card, loyalty card, smart card, or the like with which a consumer enters into a debit or credit transaction is used to store the card holder's e-mail
10 internet address, in addition to the usual card identification and account data. After the card is read electronically at the point of transaction, a copy of the transaction data is preferably encrypted and then
15 electronically despatched to the card holder's e-mail address. The encryption key preferably is stored on or within the card. Despatch of data to the card holder's e-mail address may occur in real-time, or at a later time.

20 More particularly, the e-mail address and preferably encryption key will have been stored magnetically or electronically within the user's card. During the transaction, the e-mail address is read along with the normal card and account identification data. A processor
25 at the point of transaction receives this data and forwards the preferably encrypted data to the card holder's e-mail address on a network such as the internet. The forwarding of such data can occur in real-time or at a later time.

30 The internet makes the e-mail addressed data available to the card holder's computer and/or to a receipt server system, from whence the card holder can download the data. If desired, so-called push-pull technology may be
35 used to force the data to the card holder such that the card holder need not actively retrieve the data. If desired, push-pull technology could even bring the data

directly into the card holder's financial software in the card holder's computer system, for inclusion in updating the financial accounting therein.

5 Accounting type software executable by the card holder's computer receives the e-mail addressed data, which is de-encrypted and then processed. The result is that the card holder has available a current accounting of all transactions for each card he or she may use. An
10 integrated accounting is thus implemented without the card holder having to maintain paper copies that would normally be received at the time of transaction, and without the card holder having to manually enter data from the transaction(s).

15

If desired, push/pull technology could cause the de-encrypted e-mailed data to be downloaded and input directly to the card holder's accounting type software. In such an implementation, the accounting type software
20 would be maintained essentially automatically. Alternatively, the data could be e-mail addressed to a receipt server system that performs the accounting and then forwards the account-processed data to the card holder, electronically, by ordinary mail, or otherwise.

25

Other features and advantages of the invention will appear from the following description in which the preferred embodiments have been set forth in detail, in
30 conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a block diagram of an exemplary system implementing the present invention.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Figure 1 is a block diagram of an exemplary system implementing the present invention, which can provide an automatic electronic accounting of transactions, debit and/or credit, involving a debit or a credit to an account of a card holder. At a point of transaction, typically a check-out cashier counter at a store, the card holder tenders his or her credit card 10 to a cashier who passes the card through a device 20 that electronically reads card holder information 30 stored in the card. An especially sophisticated device 20 with which the present invention may be practiced is the PenWare model 3000 unit, developed by PenWare Corp. of Sunnyvale, California. The PenWare model 3000 can accommodate credit cards, debit cards, loyalty cards, smart cards, and handwritten data and includes on-device modem capability. However, the present invention may be practiced with any device that can read credit cards, smart cards, debit cards, loyalty cards or other electronic cards that can store card holder information including electronic address information.

If card 10 is a credit card, information 30 is typically stored in one or more magnetic strips 40, and if the card is a smart card 10', information 30 will be stored in an internal memory 50. In the prior art, information stored on a card has been limited to card holder identification account number, perhaps a personal identification number ("PIN"), and data indicating the maximum dollar amount that may be charged to the identified account number in a debit transaction. However, devices 20 such as the PenWare model 3000 can read three strips 40 of magnetic data from a card 10, as contrasted with only two strips for many competing devices. Thus, PenWare model 3000 type devices 20 permit magnetically encoding additional data on a third magnetic strip among strips 40 on card 10.

According to the present invention, card-stored information will now also include an e-mail or equivalent electronic address to which communications intended for the card holder may be electronically transmitted. To
5 promote security, card-stored information preferably will also include an encryption key. The present invention thus assumes that a card holder will indeed have available an e-mail or equivalent electronic address.

10 When the card is issued to the card holder, the holder's e-mail address will be stored along, with other user identification data and account number, by the card issuer in magnetic strip 30 or memory 40. Of course the
15 card holder acquires an e-mail address after obtaining the credit card.

The e-mail data and any encryption key information (collectively, 30) may be stored magnetically on a credit
20 card 10, e.g., on a third one of the magnetic strips 40. At present, each magnetic strip can store about 70 bytes of information and in practice it may be necessary to utilize the third magnetic strip on a card to store e-mail and encryption key information. However, as noted,
25 devices 20 of the PenWare 3000 class can read three strips of magnetic data. In non-magnetic strip cards, e.g., a smart card 10', the e-mail data and preferably encryption key data may be stored in read only memory ("ROM") 40 contained within the card.

30 During a transaction conducted with card 10 or 10', device 20 is coupled via connection 60 (which may be a cable or wireless connection) to an in store processor 70. Typically processor 70 will be a component in an in
35 store server system, and will may be coupled to a corporate level server 80. Collectively, device 20 and server 70 and (if present) server 80 comprise an in-store transaction

transaction terminal. A sufficiently sophisticated device 20, e.g., a PenWare 3000, may in fact comprise the entire transaction terminal, as it contains a modem and internally executable modem communication software.

5

In any event, server 70 or (if present) server 80 are coupleable via connection 90 (which may be wired or wireless) to an electronic communication network 100 such as the internet (or equivalent). As such, it is understood at either or both of server 70 and server 80 will include a central processor unit ("CPU"), memory, and a modem communications program executable by the CPU to communicate with network 100. To promote user security, server 70 and/or server 80 will store in memory a data encryption routine that will encode the user's transaction data, preferably using an encryption key stored in or on card 10.

10

15

In practice, it may be convenient for the merchant payee to post all transactions for all relevant card holders from server 70 or 80 to network 100 at the end of the working day or at some other time period, rather than to post in real-time on a transaction-by-transaction basis.

20

Thus, in the course of the subject transaction, device 20 reads the card holder's account identification and credit limit data, and also reads the card holder's e-mail address. If present, encryption key information on card 10 is also read by device 20. Device 20 then provides all of these data to server 70. Server 70 and/or 80 posts the details of the transaction (in real-time or subsequently) to network 100 using the e-mail address recorded on card 10 or 10', the transaction details preferably being transmitted as encrypted data.

25

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In due course, typically within minutes or hours, the e-mail addressed transaction data is available via links

- 110 to the card holder's computer system 120. Of course multiple card holder's could access their own data using different computer systems, e.g., system 120 for card holder 1, system 120-1 for card holder 2, etc., or
- 5 multiple card holders could retrieve their data from a common computer system (e.g., 120). Retrieval of the e-mail addressed data may be implemented so as to require the card holder to log into the network using his or her e-mail address and, where relevant, password, and request
- 10 downloading of the transaction data. If the transmitted data were encrypted, then the data will be de-encrypted by system 120, or 120-1, etc. using the appropriate encryption key information.
- 15 Preferably the user's computer system 120 will include an accounting software package 130 or 130-1, e.g., QuickenTM, MoneyTM, etc. This software package receives and incorporates the e-mailed transaction data and can maintain the current debit and credit status of the
- 20 user's account or accounts. Essentially automatically, the account is maintained in an integrated fashion with little or no bookkeeping effort required on the part of the card holder.
- 25 If desired, push/pull type internet technology may be provided such that whenever there is relevant transaction data for a given card holder, the data is automatically downloaded and made available to, by way of example, computer system 120. If desired, the data could be
- 30 automatically downloaded and coupled to the financial software package 130, to be loaded therein to automatically update the accounting record maintained by this software package.
- 35 Alternatively, some card holders may prefer to have a receipt server system 140 receive their e-mail addressed data and provide the data to them when desired by the

card holder. If desired, receipt server system 140 could even de-encrypt and process the data, e.g., with an accounting software package 130. For example, some card holders may not own a computer system 120, or may be relatively unskilled in the use of computers. Receipt server system 140 can provide the card holder with soft copies of the processed accounting data via wired or wireless link 150. Of course, receipt server 120 could instead or in addition provide hard copies to card holders so desiring, e.g., hard copy 160 to card holder 1, hard copy 160-1 to card holder 2, and so on. The card holder could be provided with receipt server-processed information periodically, e.g., monthly.

15 The integrated processed information might appear as follows:

		John Smith, checking account no. 123,456	
	1/1/97	Starting balance:	\$5,000.00
20	1/5/97	check no. 123	-\$1,000.00
	1/7/97	Macy's - VISA card no. 19283:	
		10 shirts @ \$25.00 = \$250	
		2 ties @ \$20 = \$40	
			-\$ 290.00
25	1/12/97	Sear's - Master Card no. 34838:	
		Refund:	
		1 BBQ at \$50	+\$ 50.00
	1/15/97	Brook's Bros. - VISA card no. 19283:	
		1 men's suit @ \$350	-\$ 350.00
30	1/20/97	check no. 124	-\$1,500.00
	1/28/97	check no. 125	-\$ 500.00
	1/31/97	Balance:	\$1,310.00

35 The above example shows the user's ordinary checking account activities integrated with, in this example, transactions made with two different credit cards, in which two of the transactions were debit and one was credit. In this example, the credit card transaction data are automatically entered into the accounting software program used to prepare the above accounting,

according to the present invention. The check information typically will have been manually entered by the user when writing the checks.

- 5 As noted, if the credit card transactions are sent and received substantially in real time, on or about 1/7/97 the user's accounting software would have shown the \$5,000 initial balance, the \$1,000 check debit, and the \$290 first credit card transaction debit. On or about
10 1/12/97, the accounting software would not further reflect the \$50 credit card credit, and so forth. If desired, several people might wish to share the same e-mail address, perhaps a husband and wife. In such case, the integrated processed information would include the
15 credit card transactions made by either or both.

Modifications and variations may be made to the disclosed embodiments without departing from the subject and spirit of the invention as defined by the following claims. For
20 example, retrieved information or data are not limited to receipt data per se, but could include one or more entire documents, contracts perhaps.

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WHAT IS CLAIMED IS:

1. A method of automatically tracking transactions made with at least one electronic card owned by a card holder, the method comprising the following steps:

5 (a) storing on each said electronic card, in addition to data identifying card account and card holder, an electronic address for said card holder;

(b) using said electronic card at a point of transaction to pay for or receive credit for a
10 transaction;

(c) during each said transaction, electronically reading from said electronic card said electronic address as well as said data identifying card account and card holder;

15 (d) for each transaction, electronically transmitting information identifying subject matter of the transaction over an electronic network to said electronic address for said card holder;

(e) electronically receiving said information
20 transmitted at step (d); and

(f) using information received at step (e) to generate an accounting that includes each said transaction and includes said information identifying subject matter of each said transaction.

25

2. The method of claim 1, wherein said electronic card includes at least one card selected from the group comprising (a) a credit card, (b) a debit card, (c) a loyalty card, (d) a smart card, (e) a card including
30 magnetic storage media, and (f) a card including solid state storage media.

3. The method of claim 1, wherein said electronic card is a credit card containing magnetic storage media,
35 and wherein step (a) includes at least one step selected from a group consisting of (i) storing said electronic address in a third magnetic strip on said credit card,

(ii) storing an encryption key to be used to encrypt transaction data for said card holder, and (iii) storing an encryption key to be used to encrypt transaction data for said card holder in a third magnetic strip on said credit card.

4. The method of claim 1, wherein at step (a) said electronic address is an internet e-mail address.

5. The method of claim 1, wherein step (d) includes transmitting said information via the internet to said electronic address.

6. The method of claim 5, wherein step (d) is carried out using a system selected from the group consisting of (i) a self-contained device used in step (c) to carry out said reading, which device includes a modem used to couple information to the internet.

7. The method of claim 1, wherein step (d) is carried out in a fashion selected from the group consisting of (i) transmitting said information in real-time during said transaction, (ii) encrypting and then transmitting said information in real time during said transaction, (iii) transmitting said information at a time after completion of said transaction, and (iv) encrypting and then transmitting said information at a time after completion of said transaction.

8. The method of claim 1, wherein step (e) is carried out at a site different than said point of transaction.

9. The method of claim 1, wherein at step (e), said information is received at a computer system accessible by said card holder.

10. The method of claim 1, wherein step (e) is carried out in a fashion selected from the group consisting of (i) receiving said information in real-time during said transaction, and (ii) receiving said information at a time after completion of said transaction.

11. The method of claim 9, wherein step (f) is carried out by said computer system executing a financial accounting routine that integrates into an accounting said information identifying subject matter of said transaction.

12. The method of claim 9, wherein at step (e), said information is received at a receipt server system, wherein step (f) is carried out by said receipt server system executing a financial accounting routine that integrates into an accounting said information identifying subject matter of said transaction.

20

13. A system that automatically tracks transactions made with at least one electronic card that stores data identifying the card account and the card holder and an electronic address for the card holder, which electronic card is used at a point of transaction to pay for or receive credit for a transaction, the system comprising:

a first device able to read all said data stored on said electronic card;

a second device that, for each transaction, electronically transmits information identifying subject matter of the transaction over an electronic network to said electronic address for said card holder;

a computer system that electronically receives said information transmitted by said second device and uses said information to generate an accounting that includes each said transaction and includes said information identifying subject matter of each said transaction.

14. The system of claim 13, wherein said electronic card includes at least one card selected from the group comprising (a) a credit card, (b) a debit card, (c) a loyalty card, (d) a smart card, (e) a card including magnetic storage media, (f) a card including solid state storage media, and (g) a card storing encryption key information useable to encrypt transaction data for said card holder.

15. The system of claim 13, wherein said electronic address is an internet e-mail address.

16. The system of claim 13, wherein said electronic network includes the internet.

17. The system of claim 13, wherein said second device transmits said information via said electronic network to said electronic address.

18. The system of claim 16, wherein said second device is selected from the group consisting of (i) said second device is included in said first device, and (b) a second computer system able to communicate with said electronic network.

19. The system of claim 13, wherein said computer system executes a financial accounting routine that integrates into an accounting said information identifying subject matter of said transaction.

20. The system of claim 13, wherein said computer system includes a receipt server system that executes a financial accounting routine that integrates into an accounting said information identifying subject matter of said transaction.

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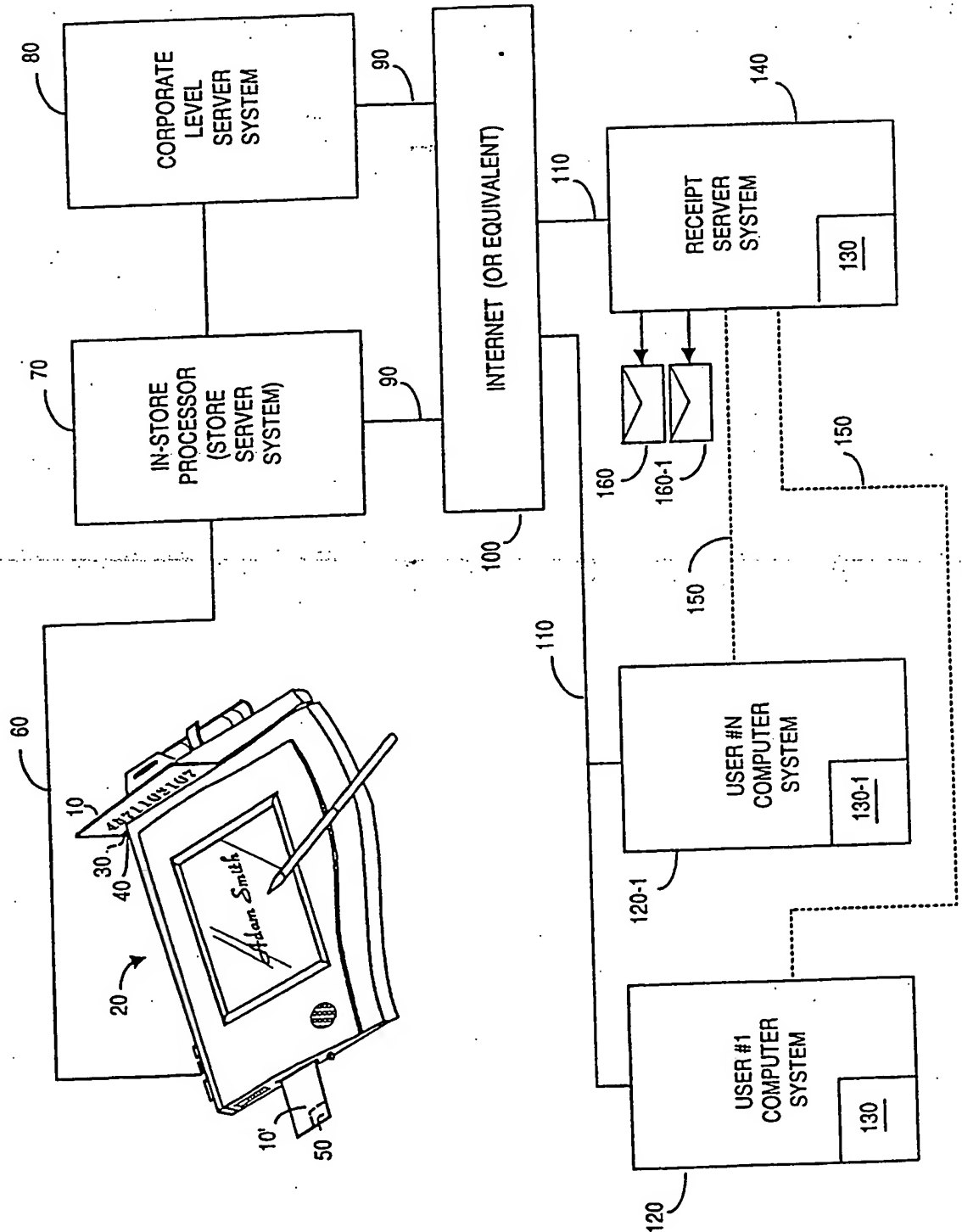


FIGURE 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/22539

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 17/60

US CL :705/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/34, 30; 235/375, 379, 380

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
APS ((debit or credit or magnetic or smart or loyalty) (3a) (card#)) (15a) ((electronic or internet or user?) (3a) (address?))

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	US 5,739,512 A (TOGNAZZINI) 14 April 1998, Fig. 1, col. 1, lines 6-29, lines 43-47, col. 2, lines 17-26, lines 41-45, col. 3, lines 9-20, col. 4, lines 56-67, col. 5, lines 8-16, lines 18-43, col. 6, lines 17-39, and lines 53-67.	1-2, 4-13, and 15-20
Y,P	col. 4, lines 53-63.	3 and 14
Y	US 4,590,470 A (KOENIG) 20 May 1986, col. 2, lines 45-51.	3 and 14

☐

Further documents are listed in the continuation of Box C.

☐

See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
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Date of the actual completion of the international search

20 DECEMBER 1998

Date of mailing of the international search report

03 MAR 1999

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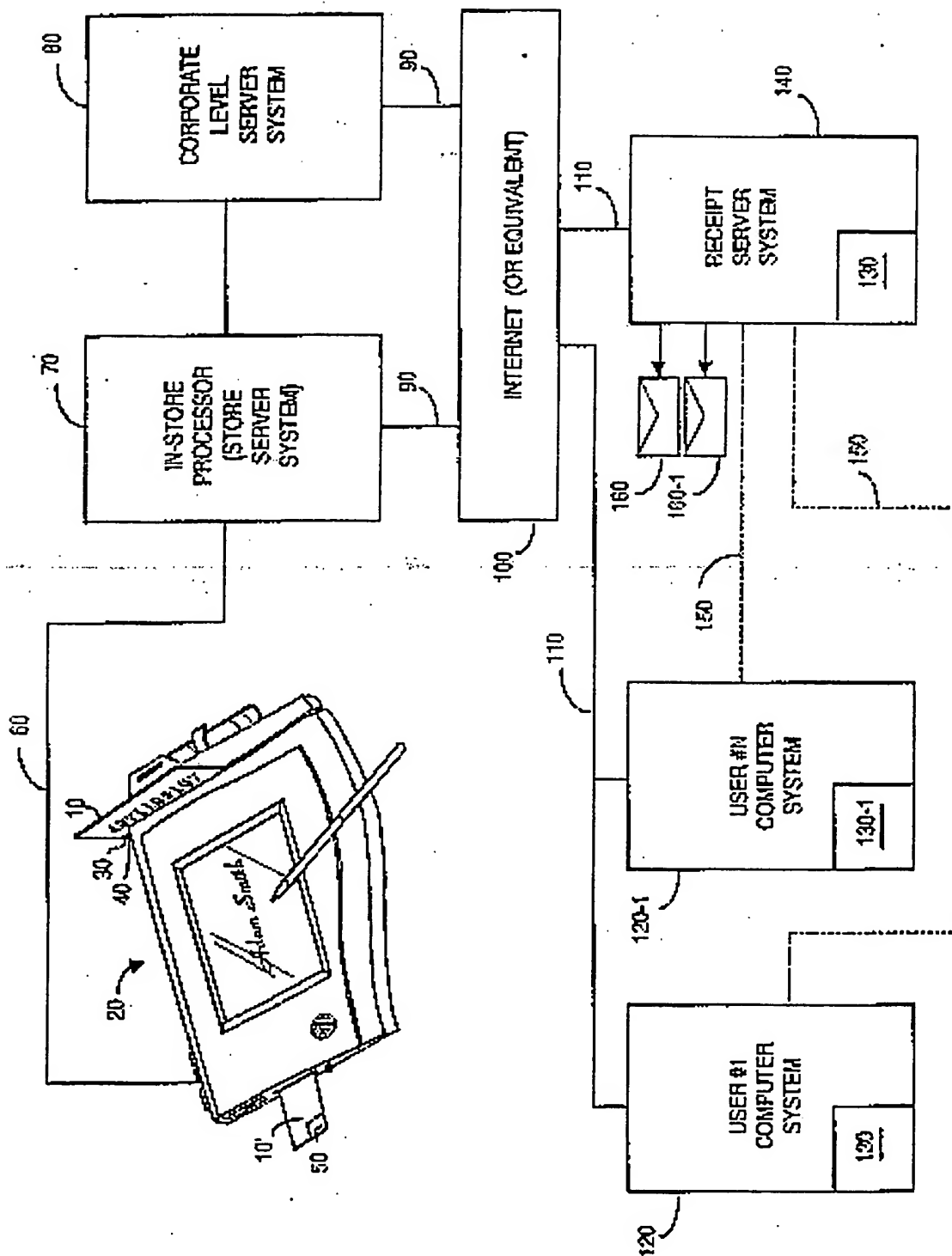


FIGURE 1

11/12

COMMONSTATE ELECTRIC COMPANY

Customer Account No. 123-456-789

John R. Public
1234 Street Drive
City, State Zip Code

Electricity Used:

Feb. 24 reading: 43210
Jan. 24 reading: 42786
30-Day Billed Use: 00424
Current Charges:

Feb. 24 reading: 43210
Jan. 24 reading: 42786
30-Day Billed Use: 00424
Current Charges:

424 x \$0.11 = \$46.64

New Charges: \$46.64
Prev. Bill: \$43.21
Payment: \$43.21
Amount Due: \$46.64
Billing Date: Feb. 28, 1999
Due Date: Mar. 12, 1999

Send Payment to:
Commonstate Electric Company
543 Main Street
Big City, State Zip Code

Question? Contact Customer Service
Phone: 1-800-555-1234
E-mail: service@cec.com
Web Page: www.cec.com

Or click here

Special Offer for Commonstate Electric Customers!
Complete Spring Car Tune-up from
CAR MASTERS
Reg. \$99, Now \$59

Click here

Got the Winter Blues?
Win a Hawaii Vacation for Two!

Click here

Cut your electricity use up to 25%!
Click here for details.

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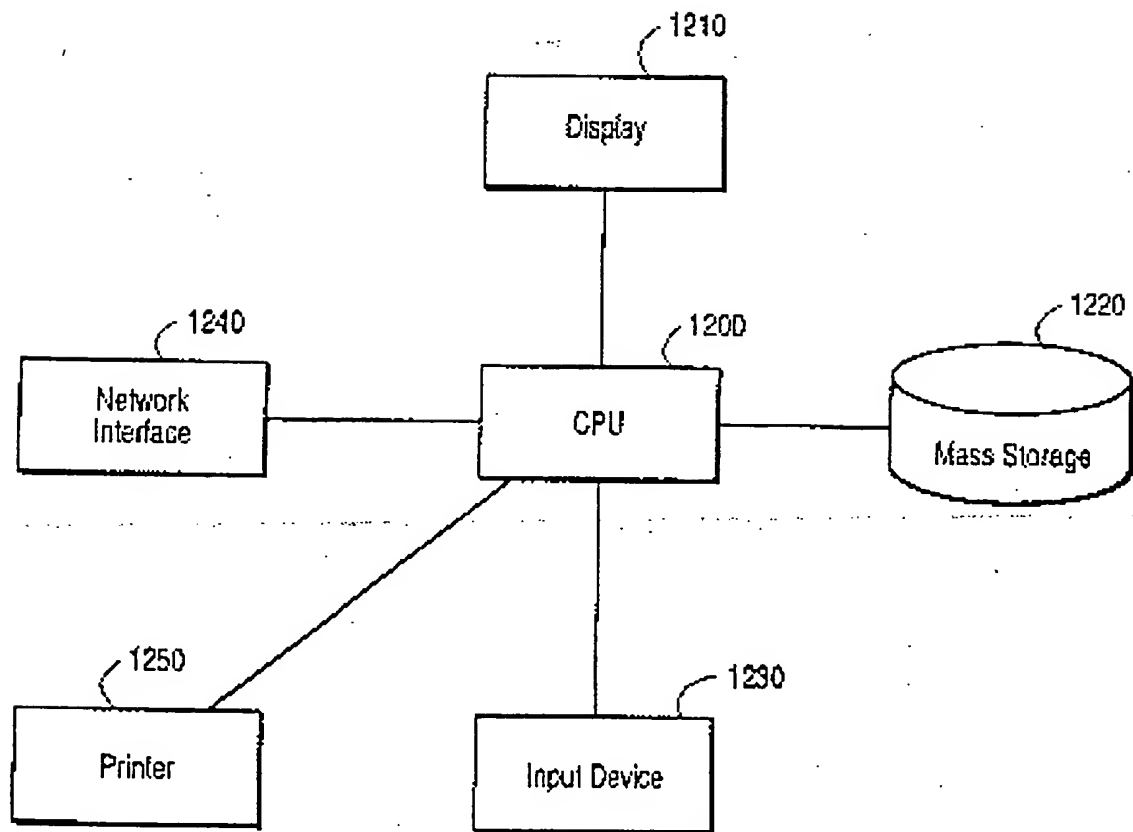
Twelve Month Electricity Use

Legend: ☐ This year ☒ Last year

Bar chart showing electricity use by month (M, A, M, J, J, A, S, O, N, D, J, F) for this year and last year.

FIG. 11

12/12

**FIG. 12**